Greater Gallatin Watershed Council

# Your Home Watershed Update

A quarterly newsletter for Gallatin Watershed residents

Promoting the conservaion and enhancement of our water resources while supporting the traditions of community, agriculture and recreation.

## Spring 2007

## In this Issue



## Quotable Quotes

"If there is magic on this planet, it is contained in water."
**- Loren Eisley (Anthropologist), The Immense Journey, 1957**

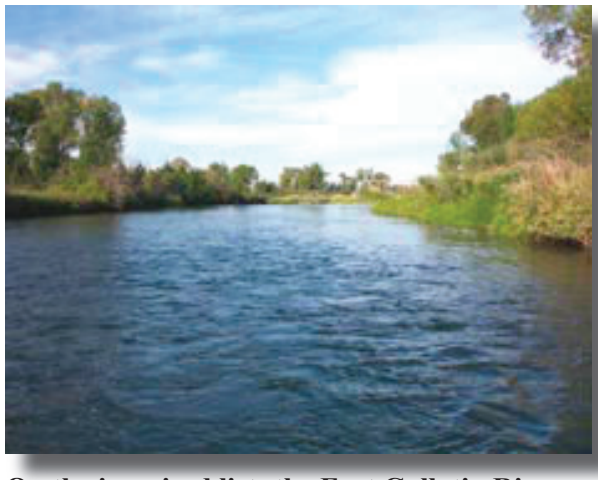
# The Gallatin Watershed: How Healthy are Our Rivers and Streams?

The answer depends on who you ask.

Some fisherman say they've seen a decrease in fish numbers in recent years while a landowner along the East Gallatin River says the river has improved since the 1980s.

Part of the answer may be in the Montana Department of Environmental Quality's (DEQ) recent Impaired Streams List.

DEQ listed 16 Gallatin Valley streams as being impaired. This means these streams were not fully supporting beneficial uses such as agriculture, a cold water fishery, drinking water or recreation. The causes include excess nutrients (phosphorus or nitrogen), the presence of E coli from human and/or animal waste, or alterations to streamside habitat (see box below).



**On the impaired list: the East Gallatin River.**

"The Gallatin Watershed has beautiful streams that offer fantastic recreation, says

**"Streams" continued page 2**

### Gallatin Valley Impaired Streams and Their Causes

**Bridger Creek:**
Chlorophyll-a, phosphorus, nitrogen

**Camp Creek:**
Alteration in riparian habitat, fecal coliform, low flow alterations, nitrogen, channelization and habitat alterations, sedimentation/siltation

**Dry Creek:**
Alteration in riparian habitat, nitrogen, phosphorus, physical habitat alterations, sedimentation/siltation

**East Gallatin River:**
Alteration in riparian habitat, excess algal growth, low flow alterations, nitrogen, phosphorus

**Godfrey Creek:**
Alteration in riparian habitat, excess algal growth, fecal coliform, nitrogen, phosphorus, sedimenations/siltation

**Hyalite Creek:**
Chlorophyll-a, phosphorus, nitrogen

**Jackson Creek:**
Alteration in riparian habitat, chlorophyll-a, phosphorus

**Reese Creek:**
Fecal coliform, nitrates, phosphate, suspended solids

**Sourdough (Bozeman) Creek:**
Alteration in riparian habitat, chlorophyll-a, E coli, phosphorus, nitrogen

**Thompson Creek:**
Alteration in riparian habitat, chlorophyll-a, nitrogen, sedimentation/siltation

**Other streams on the list:** Bear Creek, Rocky Creek, South Cottonwood Creek, Smith Creek, Stone Creek, West Fork of the Gallatin River

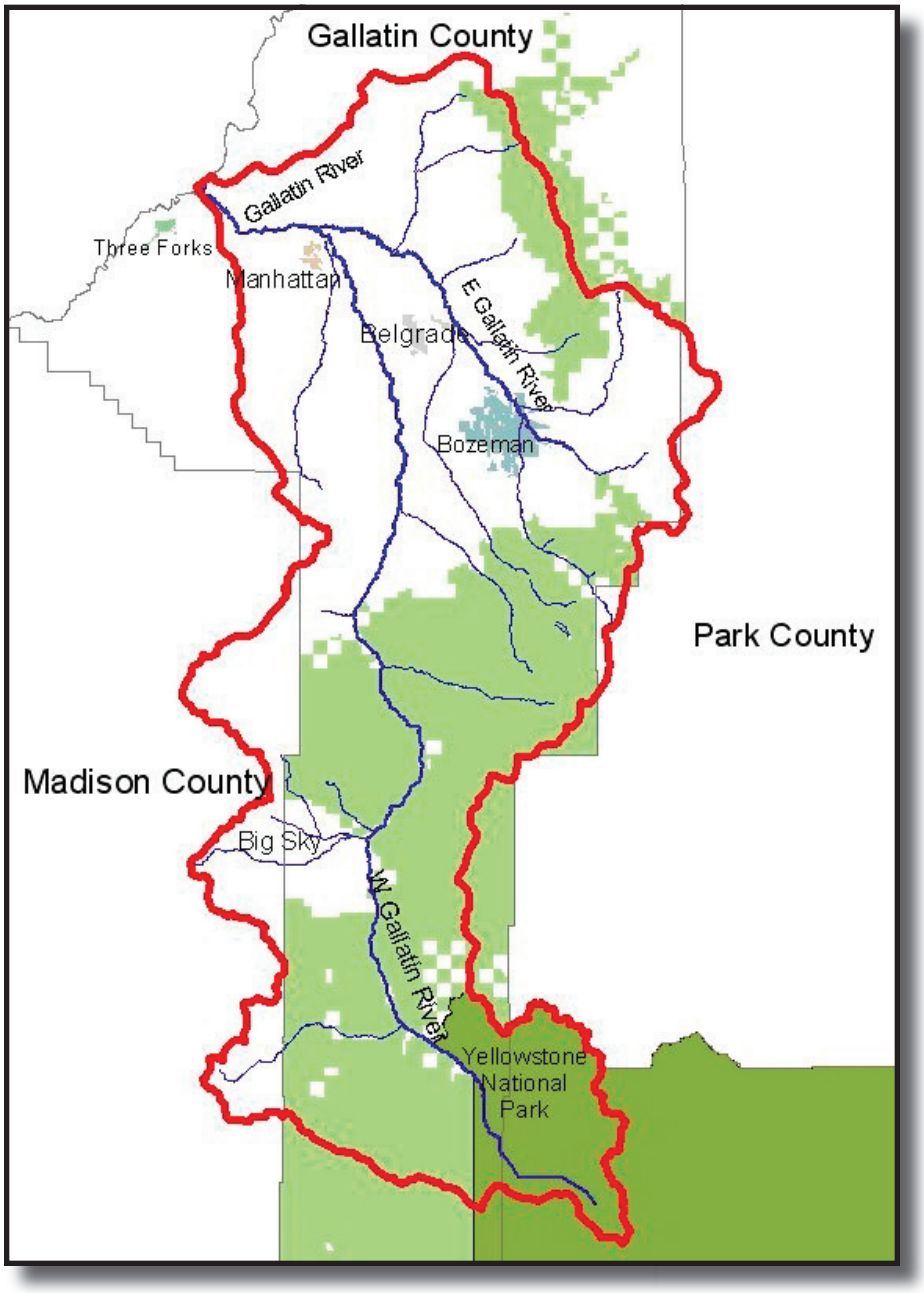
# A Look at Your Watershed

## What is a Watershed?

It is the area of land that catches rain and snow and drains or seeps into a marsh, stream, river, lake or the ground water.

## Your Home Watershed

You live in the Gallatin Watershed (see map), the area that drains the Gallatin and East Gallatin rivers. Your watershed starts (headwaters of the Gallatin River) high on the Yellowstone Plateau in Yellowstone National Park and covers nearly 1.2 million acres of the Gallatin River to the Bridger Mountains and over to Three Forks. This watershed functions as an interconnected system. When something happens in one area it can effect the water resources in other parts of the watershed.




## Did You Know?

The average person in the United States uses anywhere from 80-100 gallons of water per day. Flushing the toilet actually takes up the largest amount of this water.

## "Streams" Continued

Pete Schade, DEQ senior planner. "But there are some streams on the opposite end of the spectrum. As the area grows, we're going to be more challenged to protect the valley's water quality."

The Greater Gallatin Watershed Council (GGWC) is providing the local leadership on state mandated water quality restoration planning. That means the group is working with DEQ and the local community to study the impaired streams and develop an implementation plan to address the water quality concerns.

"The process will take the next several years," says Tammy Crone, GGWC chair and water quality specialist for the Gallatin Local Water Quality District. "We will work to bring diverse interests together and develop a water quality restoration plan that benefits the community and improves the health of our rivers and streams."

Right now, GGWC is gathering existing data on the streams. Once information is available, the group plans to share it locally through public forums and tours.

"This is important work," Crone says. "The health of our streams plays an important role in our way-of-life here."

Schade says the restoration process will be challenged with the effects of the Gallatin Valley's ongoing growth, such as streamside real estate development, increasing septic densities and more demands for wastewater treatment.

"I hope in 50 years, we can look back and say we did the right thing for the water and the people."

**To see the stream listings, visit: http://deq.mt.gov/CWAIC/**

# City Commission Approves Design for Wastewater Treatment Plant Upgrades

**by Tom Adams**

The Bozeman City Commission approved a comprehensive design contract (professional services agreement) for the design of a new, advanced biological nutrient removal (BNR) wastewater treatment facility for the City of Bozeman on April 9th.

This endeavor represents the largest and most complex public works project the City of Bozeman has ever undertaken.

When completed, the new facility will be capable of removing not only the conventional pollutants it already removes, but also compounds containing total nitrogen and total phosphorus. This will reduce the plant's current nutrient load to the East Gallatin River.

The approved Wastewater Facilities Plan calls for three phases of expansion. Phase I is now underway which includes the design of new BNR basins, new pumping stations, new clarifiers, standby emergency power systems, biosolids dewatering equipment and ultra-violet (UV) disinfection of the plant effluent. Over the next 15 years this project will expand the treatment plant from its current design of 5.8 million gallons per day (MGD) to an ultimate capacity of 13.9 MGD. This new facility will meet the needs of our growing community through the year 2025 when the projected population of Bozeman is expected to reach nearly 90,000 people.

**One of the holding ponds at the Bozeman Wastewater Treatment Plant.**

Bozeman's new BNR facility will incorporate many new technologies including deep bed de-nitrification filters, screw press dewatering equipment, and state-of-the-art instrumentation and computer control systems. From an environmental standpoint the most important feature of the new facility will be its ability to reduce nitrogen and phosphorus loads. The result will be a highly polished effluent that will protect and enhance the water quality of the East Gallatin River.

*Tom Adams, superintendent for the Bozeman Wastewater Treatment Plant, can be reached at 586-9159.*

# How Can You Protect Your Water? Maintain Your Septic System.

**by Debbie Zarnt**

If you are one of the 500,000 people in Montana who relies on a clean ground water supply for your domestic well, there are certain steps you should take to protect your water.

Much of Montana's growth is occuring in rural areas where there are no central waste disposal systems. Understanding how to install and maintain septic systems will help keep our ground water, rivers, lakes and streams free from septic waste.

**Maintenance**

Septic systems require proper bacterial action and periodic pumping to function properly. If the system is not pumped it will overflow and clog the pipes. It is costly to repair or replace a system that has broken down due to lack of pumping. Generally, a family of four with a 1,000 gallon system should be pumped every three years.

**Septic System Maintenance Tips:**

- Don't overload: avoid showering, washing clothes, and washing dishes all at the same time
- Don't put items that don't break down into the system: grease, cooking oil, sanitary napkins
- No paint, pesticides, fertilizers or motor oil
- Use a mild detergent or baking soda rather than stronger bathroom cleaners
- Don't use caustic drain openers for a clogged drain
- If you use a water softener, don't let the salt solution enter the system
- Avoid deep rooted plants or trees near the drainfield
- Don't disturb the drainfield (mowing grass is okay)

**Signs of Failure:**

- Slow flushing toilets
- Sewage backup in drains
- Seepage on the ground near the system
- Lush green grass over absorption field even during dry weather
- Presence of nitrates or bacteria in drinking water
- Unpleasant odors around the house

*Debbie Zarnt is the Community Outreach Coordinator for the Montana Watercourse at the Montana Water Center in Bozeman, MT.*

**For More Information:**
General Ground Water Information:
www.gallatin.mt.gov/GLWQD

Septic System Information Publications:
www.montana.edu/wwwpb/pubs/mt9401.htm
www.montana.edu/wwwpb/pubs/mt9403.htm

# That bright green lawn. Is it time to rethink it?

**by Susan J. Duncan**

From million dollar mansions to Habitat for Humanity homes, rural ranchettes to long established farmsteads, America's best known vegetation management strategy is the lawn. Is it time to rethink our desire that patch of green?

One could argue there is a great deal about this tradition that doesn't make sense, especially in the West.

Time and Labor. Lawn maintenance has always been very labor intensive.

Tools. A North Carolina study showed 60% of the annual cost of homeowner lawn maintenance went to new equipment. A vast array of tools – lawn tractors and attachments, thatchers, weed eaters, edgers – are "needed" to do a good job. Most are powered by electricity or fossil fuels. Homeowners often find they need the full complement of equipment, regardless of the size their acreage.

A Landscape Alien to the Local Environment. The lawn concept developed in the cool, moist climate of the British Isles. Yet we expect to have an ever-green, weed free lawn no matter where we live. To impose our wishes on the landscape regardless of climate requires a huge amount of resources – water, fertilizer, pesticides, specially bred seed and fossil fuels.

Water. In the West, lawn watering accounts for up to 60% of urban water use. Thirsty turf grass lawns have to be irrigated to stay green. Irrigation water usually comes from drinking water systems rather than gray water, roof runoff or traditional surface water irrigation sources.

A traditional grass lawn is a financial black hole. After all the investment, we cut the crop, bag it and send it to the dump! Then it takes up a large percentage of landfill space and pesticides in the clippings interfere with biological processes of decay. Removing the clippings constitutes a loss of up to 100 pounds of nitrogen per lawn per year.

Clearly, it is time to re-think how, where and on what scale lawns are an appropriate land management strategy, especially as homeowners move out to larger acreages. What other options would be more eco-friendly and cost effective?

**A surburban house with a typical lawn.**

**Landscape features like a rock garden with native plants are more environmentally friendly.**

*Susan J. Duncan is a Bozeman Daily Chronicle Fencelines contributor and a board member of the Greater Gallatin Watershed Council.*

# Upcoming Events

**May 19**
**9th Annual Watershed Festival**
*Fun activities for kids and adults. Brought to you by the Montana Outdoor Science School (MOSS).*
**More info: call MOSS, 582-0526**

**June 1-2**
**Volunteer Water Quality Monitoring Training**
*Brought to you by the Montana Watercourse, the Gallatin Local Water Quality District and the Greater Gallatin Watershed Council*
**More info: Jody Fagan, 585-2870**

Greater Gallatin Watershed Council

**Promoting the conservaion and enhancement of our water resources while supporting the traditions of community, agriculture and recreation.**

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# Clean water sustains life in the Gallatin Valley.

# There is more pressure than ever on our water resources.

**Gallatin County is the fastest growing county in Montana.
Our population has doubled in the last two decades.**

**In 2006, the Montana Department of Environmental Quality listed 16 of the Gallatin Valley's streams as not meeting state water quality standards.**

**Number of new Gallatin County subdivision lots:**

**1990: 122**
**2006: 1,762**

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**Over 500 new septic permits are issued and over 500 new wells are now drilled each year.**

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**Since 1997, over 138,000 acres of productive farmland has been lost in the Gallatin Valley.**

Source: The Sonoran Institute

## Example Gallatin Valley Impaired Streams and Their Causes

**Dry Creek:**
Alteration in riparian habitat, nitrogen, phosphorus, physical habitat alterations, sedimentation/siltation

**East Gallatin River:**
Alteration in riparian habitat, excess algal growth, low flow alterations, nitrogen, phosphorus

**Hyalite Creek:**
Chlorophyll-a, phosphorus, nitrogen

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Source: Montana Dept. Environmental Quality

# The Greater Gallatin Watershed Council is a locally led nonprofit organization working to protect your water resources.

**We need your support to improve and maintain water quality in the Gallatin Watershed.
Please take a moment to send in your tax-deductible donation to:**

**Greater Gallatin Watershed Council
P.O. Box 751
Bozeman, MT 59771**

## Amount enclosed: $ _____ Thank you!

*Promoting conservation and enhancement of our water resources while supporting the traditions of commmunity, agriculture and recreation.*